BEST AVAILABLE COPY

OPIC
OFFICE DE LA PROPRIÉTÉ INTELLECTUELLE DU CANADA

CIPO
CANADIAN INTELLECTUAL PROPERTY OFFICE

(12)(19)(CA) **Demande-Application**

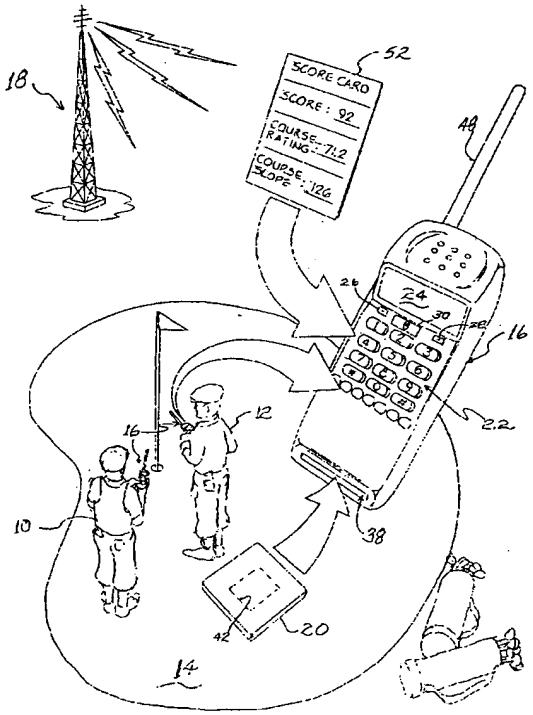
(21)(A1) **2,293,944**
(22) 2000/01/05
(43) 2000/08/02

(72) PECK, RICHARD L., US
(72) ROBERTS, THOMAS F., US
(71) SCHLUMBERGER TECHNOLOGIES, INC., US

(51) Int.Cl.[7] G06K 19/067, H04Q 7/32, A63B 71/06, A63B 57/00
(30) 1999/02/02 (09/243,148) US

(54) **SYSTEME DE DONNEES SUR LE GOLF FONDE SUR UN SERVICE DE RADIOTELEPHONIE MOBILE**

(54) **MOBILE PHONE BASED GOLF DATA SYSTEM**



(57) A SIM smart card of the type having a microprocessor chip and memory for operational receipt of software applications, normally programmed for controlled access and selective operation of a GSM based mobile phone handset, is additionally provided golf handicap application software in its memory. The golf handicap application software includes a predetermined golf handicap calculation formula for selective operation of the GSM based handset in a golf handicap index mode. Data input and output features of the GSM based mobile phone handset are used for inputting golf scoring related data, such as a user's adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play. The software application transforms such data input into a user's golf handicap index. The calculated index or other stored golf scoring records or golf related data generally may be selectively displayed with the output features of the handset, or otherwise transmitted to a remote location using mobile telephony operations of the handset. A pin designation operative with the SIM card memory and the handset permits controlled access to both telephony operations and a user's golf scoring records. Other forms of mobile phones and/or smart cards or integrated chips may be practiced, including the use of computer software applications residing on an integrated chip received in the mobile phone.

ABSTRACT OF THE DISCLOSURE

A SIM smart card of the type having a microprocessor chip and memory for operational receipt of software applications, normally programmed for controlled access and selective operation of a GSM based mobile phone handset, is additionally provided golf handicap application software in its memory. The golf handicap application software includes a predetermined golf handicap calculation formula for selective operation of the GSM based handset in a golf handicap index mode. Data input and output features of the GSM based mobile phone handset are used for inputting golf scoring related data, such as a user's adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play. The software application transforms such data input into a user's golf handicap index. The calculated index or other stored golf scoring records or golf related data generally may be selectively displayed with the output features of the handset, or otherwise transmitted to a remote location using mobile telephony operations of the handset. A pin designation operative with the SIM card memory and the handset permits controlled access to both telephony operations and a user's golf scoring records. Other forms of mobile phones and/or smart cards or integrated chips may be practiced, including the use of computer software applications residing on an integrated chip received in the mobile phone.

Attorney Docket No.: SCH-54

TITLE: MOBILE PHONE BASED GOLF DATA SYSTEM

BACKGROUND OF THE INVENTION

The present invention relates generally to golf data system technology and more specifically to a specialized mobile phone application for permitting combined mobile telephony operations and portable golf data features using a GSM based mobile phone handset of the type having data input and output features. The subject invention concerns both apparatuses and methodologies in such areas, including in some instances the use of practical computer software applications involving an algorithmic approach to producing a useful, concrete and tangible result, i.e., namely, mathematical calculations for transforming data into a user's handicap index and/or otherwise storing, maintaining, and retrieving golf scoring records and/or golf related data generally.

By some estimates, there are as many as 20 million golfers in the United States alone. Some small percentage of those golfers have access to any formal handicap system. The United States Golf Association (USGA) Handicap System is a widely practiced mechanism among those players who track their handicaps.

Practice of any handicap system conventionally involves the use of a predetermined calculation algorithm, such as possibly having several intermediate steps. In the case of the USGA Handicap System (and others), a user must monitor and maintain certain golf scoring related data for multiple rounds of play. Typically, data required for each round of play (for handicap calculation purposes) includes a

player's adjusted gross score for the round of play and corresponding USGA course rating and USGA slope rating associated with such round of play. Using known calculation formulas of the USGA Handicap System, such data may be used for determining a handicap differential for such round of play. Then, depending on the number of rounds of play for which usable data is available, a number related to the average of a player's lowest handicap differentials determines a player's golf handicap index, which is the final measure of the "player's handicap."

For the sake of conveniently calculating a player's resulting handicap, various specialized devices have been heretofore provided. Some such devices involve specialized forms of "electronic calculators" while other devices constitute more mechanical slidable and/or rotatable calculation aids. Such devices may accommodate considerations of a player's adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play. United States patents providing examples of various prior art devices, both electronic and mechanical based, include: U.S. Patent Nos: 5,127,044; 5,291,850; 5,398,418; 5,536,010; 5,562,550; and 5,683,303.

While there are millions of golf players in the United States, there are also millions of users in the United States of cellular telephones, which permit mobile telephony operations. One known telecommunications system involves a particular type of mobile phone handset, to which control access is obtained through use of a particular type of smart

card. As generally known, a smart card is a device, typically about a wallet sized card, in which is received a microprocessor or microcontroller and memory, permitting the card to be programmed. Such programming may typically include an access code or identification for the card holder or user, such that the smart card permits the user to access a particular device or location, such as entering a secured area or operating a secured piece of equipment.

United States Patent No. 5,497,411 issued to Pellerin discloses one such telecommunications card-access system using a smart card for providing access to a cellular phone equipped with a particular form of access module. The cellular phone constitutes a handset having data input and output features, such as a keypad and display or screen (for example, using LCD technology). The associated smart card may have imbedded or programmed information concerning the identity of the card holder or user, such that the card may be placed in a port on the cellular phone and a resulting access test may take place to ensure only authorized operation of the cellular phone handset.

The referenced access test may include the passage of a code designation from the smart card to the cellular phone (via the specialized access module) so that the person attempting to operate the handset must use the keypad to match the embedded code in order to ultimately access operation of the cellular phone. Complete details of such arrangements are set forth in the referenced U.S. Patent No. 5,497,411.

The disclosures of all of the above-referenced United States patents are fully incorporated herein by reference.

SUMMARY OF THE INVENTION

The present invention recognizes and addresses various limitations of prior golf scoring and/or data systems. Thus, broadly speaking, a principal object of this invention is improved golf scoring and/or data systems and methodologies. More particularly, a main concern is improved receipt and/or handling of golf scoring related data and/or golf related data generally.

It is another particular object of the present invention to provide improved devices and methodology for using data input to a device for quickly and conveniently calculating a player's/user's handicap index. Accordingly, it is a present object to provide more ready and convenient access for millions of golfers to a system for calculating and maintaining the golfer's handicap index.

It is another object of the present invention more generally to provide improved portable devices and methodologies for maintaining a user's golf scoring records and/or for golf data generally.

Still further, an object is to enable a user to more readily participate in a predetermined or existing handicap system, for example, such as the USGA Handicap System, by utilizing algorithms and calculation formulas as associated with such preexisting system or systems.

Still further, it is a present object to provide and make use of a golf handicap smart card embedded

with a microprocessor or microcontroller and memory for calculating and storing an owner's handicap and for storing associated golf scoring related data. In such context, it is a more particular object to provide such a golf handicap smart card which is otherwise operable with a mobile phone handset of the type having data input and output features, for making use of such features for entering data to the smart card and for obtaining calculated results and/or stored golf scoring records therefrom.

Another present object, by making use of smart card based technology, is to provide a golf handicap system which is highly portable and convenient. In such context, it is desired to facilitate a golfer's ability to easily establish, maintain, and display their current golf handicap index anywhere at anytime, with access to a particular mobile phone handset, and/or to maintain and display their golf scoring records generally with such handset.

Still further, it is a present object to provide a golf handicap smart card system and methodology which assures secured access for the user, so that golf scoring records and handicap index data can be maintained in privacy and/or without corruption from misfed data.

Provision of an improved combination of smart card and mobile phone handset for also permitting golf scoring related features with mobile telephony features is yet another present objective.

It is also a present object to provide an improved portable golf data system. In such context, it is a more particular object to provide a mobile phone based

golf data system, usable with various forms of mobile phones and/or various forms of smart cards, or other forms of integrated chips.

It is yet another present object to provide improved portable golf data systems and methodologies, whether concerning golf related data (such as course ratings for particular courses or par ratings for particular holes of such courses), or concerning other general golf related data (such as average distance per numbered club), or golf scoring data records, or calculated golf handicap differential and handicap index data.

Additional objects and advantages of the invention are set forth in, or will be apparent to those of ordinary skill in the art from, the detailed description herein. Also, it should be further appreciated that modifications and variations to the specifically illustrated, referenced and discussed features, steps or materials and devices hereof may be practiced in various embodiments and uses of this invention without departing from the spirit and scope thereof, by virtue of present reference thereto. Such variations may include, but are not limited to, substitution of equivalent means and features, materials or steps for those shown, referenced or discussed, and the functional, operational, or positional reversal of various parts, features, steps, or the like.

Still further, it is to be understood that different embodiments, as well as different presently preferred embodiments, of this invention may include various combinations or configurations of presently

disclosed features, steps, or elements, or their equivalents (including combinations of features or steps or configurations thereof not expressly shown in the figures or stated in the detailed description). One exemplary such embodiment of the present invention relates to a smart card based golf scoring system, comprising a GSM based mobile phone handset, a SIM card, and golf scoring means.

In the foregoing exemplary embodiment, the GSM based mobile phone handset is preferably of the type having data input and output features, and having a SIM card port. The corresponding SIM card is provided for being received in the handset SIM card port for operation of such GSM based mobile phone handset. The SIM card includes memory for operational receipt of software applications. In such example, one such software application is the golf scoring means, received in the SIM card memory, and provided for handling data input thereto via the handset data input feature for maintaining a user's golf scoring records.

In certain embodiments, such golf scoring means may include golf handicap algorithm means, comprising a SIM card memory software application having a golf handicap calculation formula for transforming data input thereto via the handset data input feature into a user's golf handicap index.

In other instances, the golf scoring means may alternatively be operative for maintaining and selectively outputting through the handset data output feature data input comprising a user's score for a round of play and/or corresponding course rating and slope rating associated with such round of play.

Another present exemplary embodiment concerns a GSM based mobile phone with a SIM card golf handicap calculation feature, comprising a GSM mobile phone with a smart card reader and GSM access module and a SIM smart card including a microprocessor and associated memory incorporating a predetermined golf handicap calculation formula within a golf handicap software application.

In such embodiment, the GSM mobile phone access module is preferably for operational removable receipt of a SIM card programmed for association therewith. Such mobile phone further preferably includes cellular device control circuits and a cellular/smart card interface for control of the cellular device control circuits through the SIM card removably associated therewith. Such GSM mobile phone preferably additionally includes a keypad for inputting data to such mobile phone and a display for outputting data from such mobile phone.

In the foregoing exemplary embodiment, the SIM smart card is provided for operational removable association with the GSM mobile phone, for accessing and selectively operating the cellular device control circuits thereof for conducting mobile telephony operations. Upon operation of the golf handicap software application, the mobile phone is selectively operated in a golf handicap index mode, such that the keypad is used for inputting predetermined golf scoring related data to the mobile phone, the predetermined formula is used to calculate a handicap index, and the display is used for selectively displaying the calculated handicap index.

Yet another construction comprising a present exemplary embodiment relates to a SIM smart card with golf handicap calculation feature. In such embodiment, the SIM smart card is provided for use with a GSM based mobile phone handset of the type having data input and output features, and having a SIM card port. Such smart card in accordance with the invention comprises a preferably pocket size card with a microprocessor chip and memory for operational receipt of software applications, including mobile phone operational software for selected mobile phone operation of the GSM based mobile phone handset with the pocket size card being received in the SIM card port thereof. Such card memory preferably further includes golf handicap application software incorporating a predetermined golf handicap calculation formula, for selective operation of the handset in a golf handicap index mode. In such mode, the software transforms data input via the handset data input feature into a user's golf handicap index, such that a user operating the mobile phone handset with such smart card may selectively conduct mobile phone operations and golf handicap index calculations.

Still another present exemplary embodiment concerns a mobile phone based golf data system, such as including a smart card based mobile phone handset, a smart card, and golf data means. In such embodiment, the mobile phone handset preferably includes data input and output features, and has a smart card port for controlled access to operation thereof. The associated smart card is provided for being received in such handset smart card port for selective access

to operation of the mobile phone handset. Such smart card preferably also includes memory for operational receipt of software applications. The referenced golf data means preferably comprises a software application received in such smart card memory, and provided for maintaining golf data records.

In the above-referenced example, such golf data means may include prestored golf related data selectively accessible with the handset data output feature. In still further alternative embodiments, such golf data means may include golf scoring means comprising a software application received in the smart card memory for handling any data input thereto via the handset data input feature and for maintaining a user's golf scoring records. Such golf scoring means may further include golf handicap algorithm means comprising a smart card memory software application having a golf handicap calculation formula for transforming data input thereto via the handset data input feature into a user's golf handicap index.

In yet another presently preferred exemplary embodiment, a portable golf data system may be provided comprising a mobile phone handset and golf data means. Such exemplary mobile phone handset may be provided with data input and output features, and having an integrated chip with programmed microprocessor functions, for operation of the mobile phone handset. Such integrated chip preferably may further include memory for operational receipt of software applications. Such golf data means may comprise one such software application received in such memory, for maintaining the golf data records.

As referenced above, such golf data means may further optionally include prestored golf related data selectively accessible with the handset data output feature and/or may include golf scoring means for handling any data input thereto for maintaining a user's golf scoring records. Still further, such golf scoring means may involve a golf handicap calculation formula for transforming data input thereto into a user's golf handicap index.

It should be understood that the scope of the present invention equally relates to corresponding methodologies. One exemplary such methodology concerns operating a smart card based golf handicap system, including the steps of providing a GSM based mobile phone handset of the type having data input and output features, and having a SIM card port; and providing for being selectively received in such handset SIM card port a SIM smart card of the type having a microprocessor chip and memory for operational receipt of software applications.

The foregoing exemplary methodology preferably further includes the step of incorporating mobile phone operational software into the SIM smart card memory and selectively operating such with the SIM smart card associated with the handset for conducting mobile phone operations. Yet an additional step includes further incorporating golf handicap application software into such SIM smart card memory, including a predetermined golf handicap calculation formula, for selective operation of the handset in a golf handicap index mode, for transforming data input via such handset data input feature into a user's golf

handicap index. With practice of such methodology, a user may selectively operate the handset with the smart card for either conducting mobile phone operations or golf handicap index calculations.

Those of ordinary skill in the art will better appreciate the features and aspects of such embodiments and methodologies, and others, upon review of the remainder of the specification.

BRIEF DESCRIPTION OF THE DRAWINGS

A full and enabling disclosure of the present invention, including the best mode thereof, directed to one of ordinary skill in the art, is set forth in the specification, which makes reference to the appended figures, in which:

Figure 1 is a perspective view of an exemplary embodiment of the present invention illustrating use thereof in a typically expected setting, on a golf course;

Figure 2 is a schematic block diagram representation of exemplary mobile phone handset and smart card features in accordance with the subject invention;

Figures 3 through 10 are respective representations of successive display panels which may be practiced in accordance with an exemplary embodiment of the present invention, and reflecting a flow of operation of present exemplary software applications; and

Figure 11 is a schematic block diagram representation of a further embodiment of an exemplary mobile phone handset relating to a portable golf data system in accordance with the invention.

Repeat use of reference characters throughout the present specification and appended drawings is intended to represent same or analogous features, elements, or steps of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The following discussion relates various exemplary embodiments of the present invention, including the best mode thereof and including both apparatus and methodology. It is to be understood by those of ordinary skill in the art that the broader spirit and scope of the subject invention is applicable to many variations. For example, embodiments of the subject invention may be adapted for use with different forms of handicap calculation algorithms and/or for use with different golf scoring records. Likewise, embodiments of the present invention may be adapted for use with different physical forms and sizes of smart cards and/or mobile phones. Hence, it is to be understood that the specific discussion herewith is by way of example only, and not intended as limiting the broader aspects of the subject invention.

Figure 1 illustrates a perspective view of an exemplary embodiment of the present invention illustrating use thereof in a typically expected setting, such as on a golf course. It is to be understood that different embodiments of this invention may comprise constructions of smart cards for use with a mobile phone in accordance with the subject invention, as well as combinations of mobile phones and adapted smart cards, and methodologies based thereon.

The perspective view of Figure 1 represents two golf players generally 10 and 12 on a representative golf green generally 14. Each player 10 and 12 holds an exemplary mobile phone generally 16, provided in accordance with the subject invention. As is well understood by those of ordinary skill in the art, the mobile phone 16 may be used in a conventional way for cellular phone operations via an associated group of cellular phone antennas. One such antenna generally 18 is represented (not to scale) in the background of present Figure 1, reflecting such conventional usage.

An enlarged view of exemplary mobile phone 16 is shown in perspective in present Figure 1. The representation illustrated of such mobile phone 16 is intended to be general, rather than specific to a particular model, other than the broader context of the subject invention, which encompasses GSM based mobile phone handsets. As is well known to those of ordinary skill in the art, a Global System for Mobile Communications (GSM) handset is of the type requiring an associated smart card, generally 20, for control access thereto.

Smart card 20, generally represented in perspective, enlarged view in present Figure 1, may assume different shapes. For example, such smart cards conventionally may come in at least two different sizes, such as a wallet sized card (i.e., credit card type) and a smaller type having a "plug-in" type module. Such smaller type of plug-in module is intended for use with certain smaller sized mobile phones which would otherwise not be able to accept the

physically larger credit card type of smart card device.

More particularly, smart card 20 in accordance with the subject invention preferably comprises a Subscriber Identity Module (SIM) smart card or an equivalent. As well known to those of ordinary skill in the art, a SIM smart card is of a type generally that includes one or more embedded circuits, such as a microprocessor or microcontroller, as well as various memory components. SIM smart cards are particularly adapted for use in association with GSM based phones.

Technology for SIM smart cards and GSM based mobile phone differs from other forms of cellular phones, in at least one way, in that the identity of the GSM Mobile Station (MS) and its user is part of the data stored in the SIM smart card. In other words, the form of identification conducted is not merely that of a particular handset of a mobile phone, because control access to such mobile phone must be authorized for a particular user. Since the user's identity is portable, contained within the SIM smart card, it may be inserted into any GSM based handset for making and identifying a user's GSM MS.

As well known to those of ordinary skill in the art, a GSM based mobile phone hand set requires a SIM smart card for any form of mobile telephony operations (i.e., receiving or originating calls, except typically for various forms of emergency calls). Controlling regulations in general require that certain emergency calls must be available at all times.

The SIM smart card imbedded microcontroller or microprocessor includes both Read Only Memory (ROM) for programs and Electrical Erasable and Programmable Read-Only Memory (EEPROM) as additional memory for the storage of data. In other words, a SIM smart card has structure similar to that of a computer, for example in that there are also standard features used for accessing the memory and functions related to security. Such secured access may be utilized in the context of the subject invention for securing solely to the user information concerning, for example, a calculated handicap index, as well as stored golf scoring records for the user. Additional details regarding the specific structure and conventional operation of SIM smart cards and GSM based mobile phone handsets are well known to those of ordinary skill in the art, and form no particular aspect of the subject invention. See, for example, the complete disclosure of U.S. Patent No. 5,497,411 which is fully incorporated herein by reference. The present invention concerns added functionality and improvements for SIM smart cards and GSM based mobile phone handsets, beyond their conventional mobile telephony operations.

Figure 1 illustrates additional features which may be incorporated into some embodiments of the subject invention. Figure 2 is a schematic block diagram of representative GSM based mobile phone handset 16.

In the present example, representative handset 16 may be provided with various data input and output features. For example, a keypad generally 22 may be provided for inputting data to mobile phone 16, while

a display generally 24 may be provided for outputting data from mobile phone 16. Display 24 may provide alphanumerical display capability, using such as an LCD display (or other, preferably low power displays).

Control keys such as generally 26, 28, and 30 may be optionally provided for aiding user interaction with such display 24, as well as with keypad 22, for purposes of accomplishing both data input and output in accordance with software applications stored primarily on smart card 20. For example, control keys 26 and 28 may facilitate interaction with display 24 by providing a means for selecting different options appearing on display 24 in the course of operation of a particular software application.

With such approach, display 24 may preferably function as a menu-type screen. Likewise, control key 30 may provide, in effect, two separate keys (32 and 34) for selecting functions, data, or other options presented on display 24, such as by moving a cursor or a control location on the display, such as by moving upwardly or downwardly on a menu to arrive at a selected entry option.

In general, smart card reader 36 cooperates with the casing of handset 16 for providing a smart card port generally 38 (see Figure 1). In other words, SIM smart card 20 (of whatever form of construction or size) is placed into a corresponding slot or port 38, and read, such as by conventional smart card reader generally 36.

As further well known by those of ordinary skill in the art, an access module generally 40 is interactive with smart card 20 for establishing control access to

handset 16 and operations which may be performed therewith (whether conventional mobile telephony operations or added functions in accordance with the present invention).

As understood by those of ordinary skill in the art, SIM smart card 20 includes embedded microprocessor or microcontroller and memory components generally 42 which contain specific information about the user (and golf player, in accordance with the subject invention). Such subject matter includes, for example, a Personal Identification Number (PIN) designation operative with handset 16 for gaining control access thereto, whereby mobile telephony operations and a user's golf scoring records are maintained under secured access. Stored subject matter may also include various software applications, both conventional features for standard mobile telephony operations and non-conventional features as added in accordance with the subject invention.

As is well known to those of ordinary skill in the art, a mobile phone operates with a Mobile Identification Number (MIN). In GSM based mobile phone handsets and corresponding SIM smart cards, such MIN is not stored in the nonvolatile memory of the handset, but instead in the SIM smart card. In other words, in the present example, the MIN is not contained within handset 16, but in the embedded chips 42 of exemplary SIM smart card 20. The MIN is loaded from smart card 20 into appropriate memory of handset 16 once a user has successfully gained control access through proper entry of the PIN.

For example, a user, wanting to conduct mobile telephony operations or to practice added features in accordance with the present invention, would insert SIM smart card 20 via opening or port 38 into smart card reader 36, and thereby into operative contact with access module 40. Handset 16 through output via display 24 would then prompt the user to enter their PIN, such as by using keypad 22. Access module 40 would pass the entered PIN number back to SIM smart card 20, which in turn would then compare the entered PIN to the PIN stored in card 20. If a valid match is determined, then access module 40 causes required information to be downloaded from smart card 20 into handset 16.

After such validation and download, the user has gained control access for conducting whatever prearranged functions reside in his or her cellular phone account. In conjunction with the present invention, the user is then also prepared to manipulate (i.e., enter and/or retrieve) golf scoring records or otherwise obtain golf handicap index information.

As will be understood by those of ordinary skill in the art, the MIN may be part of the information downloaded from smart card 20 (in this example) to handset 16. However, in alternative embodiments, with some handsets it may be possible to conduct golf scoring record and/or handicap index activity without having to download mobile telephony operation data from smart card 20 to handset 16. All such variations are intended to be encompassed within the broader aspects of the subject invention.

If control access is gained and if the MIN is transferred from smart card 20 to access module 40, then a conventional cellular/smart card interface generally 44 will be operative for directly accessing operations of conventional cellular device control circuits 46. Additional details of such operations form no particular aspects of the subject invention, and are well known to those of ordinary skill in the art. See also the complete disclosure of U.S. Patent No. 5,497,411, fully incorporated herein by reference.

As referenced above, the present invention addresses specifically calculation of a user's handicap index, as well as more generally, maintaining a user's general golf scoring records. As is known, a handicap is a calculated number used to indicate a measurement of a golfer's potential scoring ability on a course of standard difficulty, and is expressed as a number taken to one decimal place (for example, 12.6). The present invention makes advantageous use of the intelligence, storage capacity and portability of smart card 20 for calculating, scoring, and displaying a golfer's handicap index, as well as other golf scoring records.

In such fashion, and using an associated GSM based mobile phone handset, golfers are able to easily establish, maintain and display their current golf handicap index (and/or other golf scoring records) anywhere at anytime.

In accordance with the subject invention, Figures 1 and 2 broadly represent a smart card based golf scoring system comprising a GSM based mobile phone handset 16 and SIM card generally 20, including golf

scoring means comprising a software application received in the SIM card chip(s) 42 (including the memory thereof). In other words, a particular predetermined handicap calculation formula or algorithm is programmed into the memory (such as the EEPROM) of the SIM smart card 20. Hence, the resident computer software application on card 20 performs all requisite calculations, thereby comprising the herein referenced golf scoring means. Data is input thereto via the handset data input features referenced above, such as including exemplary keypad 22. As discussed display 24 and control keys 26, 28, and 30 also may play a role in data input and output relative to handset 16 (discussed in additional detail below).

In other embodiments of the subject invention, the golf scoring means of such embodiments may more broadly comprise software applications received in the SIM card memory for handling data input thereto via the handset data input features for maintaining a user's golf scoring records. Such records may include scoring by rounds, including multiple rounds, and may include for example adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play. The golf scoring means comprising such a software application in accordance with the subject invention may furthermore be operative for maintaining and selectively outputting through the handset data output feature data input comprising the user's score for a particular round of play, or additional information, such as adjusted gross score, and corresponding course rating and slope rating, for a particular round of

play, or for multiple rounds of play. In embodiments where such golf scoring means is operative for transforming data input thereto into a user's golf handicap index (for example, using a predetermined handicap calculation algorithmic approach), the golf scoring means may be operative for selectively outputting through the handset data output feature the user's golf handicap index and/or the user's golf scoring records as maintained thereby.

While the present invention may be practiced with various handicap systems, one preferred embodiment makes use of the widely followed USGA Handicap System. Additional information about the USGA is available per its web page (http://www.usga.com/handicap/index).

Per the USGA Handicap Formula, the resulting Handicap Index is the USGA's mark which is used to indicate a measurement of a player's potential scoring ability on a course of standard difficulty. Potential scoring ability is measured by a player's best scores, and is expressed as a number taken to one decimal place. Such scores are identified by calculating a handicap differential for each score (i.e., each round of play). The USGA Handicap Index is calculated by taking ninety-six percent (96%) of the average of the best handicap differentials. Particular calculation approaches are taken for golfers who have two or more eligible tournament scores. Additional detailed information about the USGA Handicap Formula is available at:(http://www/usga.org/handicap/manual/part_two/section_ten.html). A printoff of pertinent information from such Web page is attached hereto as Appendix A, forming part of the original disclosure of

the subject patent application. For example, Section 10-3 as set forth therein indicates calculation approaches to be taken for golfers with two or more eligible tournament scores.

The following information describes specifically under the USGA Handicap Formula how handicap differentials are determined.

A handicap differential is computed from four elements: adjusted gross score, USGA Course Rating, USGA Slope Rating and the constant 113 (the Slope Rating of a course of standard difficulty). To determine the handicap differential, one would subtract the USGA Course Rating from the adjusted gross score; multiply the difference by 113; then divide the resulting number by the USGA Slope Rating; and lastly round the final number to the nearest tenth. Such approach may be stated as an equation, as follows:

Handicap Differential =
(Adjusted Gross Score - USGA Course Rating) x 113/USGA Slope Rating

Handicap differentials may be plus or minus, as discussed with reference to the following examples.

When a player's adjusted gross score is higher than the USGA Course Rating, the handicap differential is a positive number. Following is an example for determining a differential using an exemplary adjusted gross score of 95 made on a course with a USGA Course Rating of 71.5 and a USGA Slope Rating of 125:

Adjusted Gross Score - USGA Course Rating:

95 - 71.5 = 23.5

Difference x Standard Slope:

23.5 x 113 = 2655.5

Result/USGA Slope Rating:

2655.5/125 = 21.244

Handicap Differential (rounded):

21.2

When a player's adjusted gross score is lower than the USGA Course Rating, the handicap differential is a negative number. Following is an example for determining a differential using an exemplary adjusted gross score of 69 made on a course with a USGA Course Rating of 71.5 and a USGA Slope Rating of 125:

Adjusted Gross Score - USGA Course Rating:

69 - 71.5 = -2.5

Difference x Standard Slope:

-2.5 x 113 = -282.5

Result/USGA Slope Rating:

-282.5/125 = -2.26

Handicap Differential (rounded):

-2.3

The USGA Handicap Index Formula is based on the best handicap differentials in a player's scoring record. If a player's scoring record contains 20 or more scores, then the best 10 handicap differentials of the most recent 20 scores are used to calculate his USGA Handicap Index. The percentage of scores used in a scoring record decreases from the maximum of the best 50 percent as the number of scores in the scoring record decreases. If the scoring record contains 9 or 10 scores, then only the best three scores (30 to 33 percent) in the scoring record will be used. Thus,

the accuracy of a player's Handicap Index is directly proportional to the number of acceptable scores he or she has posted. A USGA Handicap Index shall not be issued to a player who has returned fewer than five acceptable scores. The following procedure illustrates how authorized golf associations and golf clubs calculate a player's Handicap Index if the number of acceptable scores in the player's record is fewer than 20.

The procedure for calculating Handicap Indexes is as follows:

(i) Use the following table to determine the number of handicap differentials to use:

Number of Acceptable Scores	Differentials To Be Used
5 or 6	Lowest 1
7 or 8	Lowest 2
9 or 10	Lowest 3
11 or 12	Lowest 4
13 or 14	Lowest 5
15 or 16	Lowest 6
17	Lowest 7
18	Lowest 8
19	Lowest 9
20	Lowest 10

(ii) Determine handicap differentials;

(iii) Average the handicap differentials being used;

(iv) Multiply the average by .96 (ninety-six percent);

(v) Delete (i.e., truncate) all numbers after the tenths digit. Do not round off to the nearest tenth.

Additional handicap calculation system information is available on the Internet. See, for example: http://www.strokenet.com; http://www.ldl.net/~wmll/golfhand.htm; and http://www.ttsoft.com/.

Printoffs of introductory information from several of such sites are further attached hereto under Appendix B and Appendix C and are incorporated herein by reference.

As understood from the foregoing disclosure, a golf handicap calculation formula, per one exemplary embodiment, incorporated into a SIM smart card in accordance with present golf scoring means and/or other present embodiments of a software application, operates on data input thereto. In doing so, it determines a user's golf handicap index by taking, for example, ninety-six percent of the average of a variable predetermined number of a user's determined lowest handicap differentials. Such predetermined number varies based on the total number of available scoring records for the user.

As additionally represented by present Figures 1 and 2, as well known exemplary handset 16 includes an antenna generally 48 through which mobile telephony operations may be conducted with representative tower antenna 18 (and others). In accordance with additional software applications which may be stored within the memory of SIM smart card 20 in accordance with the subject invention, handset 16 may be operable

for transferring a user's golf scoring records to a remote location via mobile telephony operations of handset 16.

Figures 3 through 10, inclusive, provide respective representations of successive display panels (menu-type screens) which may be practiced in accordance with an exemplary embodiment of the present invention. Collectively, they reflect a flow of operation of present exemplary software applications. Therefore, they further provide adequate information to those of ordinary skill in the art for providing devices in accordance with the subject invention, as well as for practice of various methodologies thereof.

Each of representative panels of Figures 3 through 10 refer generally to exemplary display 24, as well as control keys 26, 28, and 30 thereof. "Subkeys" 32 and 34 are also involved with certain of such panels, as discussed herein.

In accordance with the subject invention, after control access to handset 16 or at least data input/output use thereof is established (as referenced above), handset 16 may prompt the user to determine whether to enter a golf handicap index mode. Per Figure 3, the alphanumeric display 24 provides a user the option to "Select" with control key 26 or to "Exit" with use of control key 28. In the event that an exit is take, regular (i.e., conventional) mobile telephony operations may be conducted (if mobile telephony control access has been established).

If the golf handicap index mode is selected in accordance with the subject invention, a further user option may be presented, such as in Figure 4. In

Figure 4, a user is presented with several operations. First, control key 28 offers the option to go "Back," in which case the display of Figure 3 would reappear, and by which a user could exit via repeat actuation of control key 28.

Alternatively, per Figure 4, a user may selectively actuate upward control key 32 or downward control key 34 so as to move a view selection cursor generally 50 from one of two indicated entries: either "Enter a New Score" or "View Previous Scores." Once view selection cursor 50 is in the desired location, control key 26 may be actuated to "Select" such choice. Assuming the selection of "Enter a New Score" is made as represented in Figure 4, the stored software application may forward visual control to a further panel or screen, as represented by present Figure 5.

As represented in present Figure 5, a user has selected to enter scoring information. Referring again to present Figure 1, a general representation of a score card 52 is represented in enlarged detail for clarity and convenience. As is well known to those of ordinary skill in the art concerning golfers, an actual score card 52 normally is a printed card having multiple entry positions for each hole of play and for each player in a group and subtotals and a total, so that a player may separately enter a raw score (or otherwise adjusted score) for each hole of play in a round of play. The illustration of present Figure 1, for simplicity, represents only a total score for a single player, such as referred to in this instance as an adjusted gross score.

In the exemplary embodiment, a user such as player 12 simply enters the exemplary adjusted gross score of "92" into handset 16 through use of keypad 22. Once the correct entry is made, control key 26 may be actuated for "OK," which completes that particular scoring entry. At any time, on the other hand, the user may utilize control key 28 for going "Back" from data entered, or ultimately going back to prior panels or menus, as referenced above, for eventually exiting the golf handicap index mode (including golf scoring generally).

Assuming that the given embodiment of the subject invention involves practice of the USGA Handicap Index, then USGA Course Rating and Course Slope comprise part of the required data in so far as calculating the USGA Handicap Index for a player or for calculating the handicap differential for a particular round of play. The USGA Course Rating is intended to reflect an expected score of a player whose handicap index is 0.0. The USGA Course Slope relates to the graded degree of difficulty of the course, relative to the average number "113."

Referring to Figure 6, the software application (i.e., the exemplary golf scoring means and other forms of the invention) may next proceed with entering data for the course rating. It is to be understood that the data herein discussed may be entered in any order within the broader features of the invention. In other words, course rating and/or course slope may be entered before score data. Likewise, course rating and course slope may be omitted, and embodiments of the subject invention may be used for only storing and

maintaining selected golf scoring records of a user, such as either natural (i.e., actual) or adjusted gross scores.

With reference to Figure 6, the user may always retreat from a previous keystroke through actuation of control key 28 for "Back." Once keypad 28 or similar is used for entering the course rating, in this example, 71.2, control key 26 may be actuated to indicate "OK." It is well understood that the score cards of USGA rated courses typically have included on them information regarding the USGA Course Rating and USGA Course Slope. For such reason, such data is represented on the exemplary score card 52 of present Figure 1, though in certain instances, a user may in fact obtain such information from a different source.

The last data required for completing information about a round of play for purposes of calculating a handicap differential for such round of play is the course slope. Figure 7 represents prompting of the player for entry of the course slope data, again using control key 28 for "Back" function and control key 26 for indicating when the course slope entry is "OK." Keypad 22 is involved with entry of such data, in this example, 126.

Figure 8 represents the manner in which some embodiments of the present invention may be provided for automatically calculating (where adequately available data resides) a user's handicap index, in accordance with whatever predetermined handicap algorithm is received in the golf scoring means or the subject software application. In the representative example of present Figure 8, the player's handicap

index (in this instance, a USGA Handicap Index) is reported as "15.5." Figure 8 further represents that the user may "Exit" with actuation of control key 28, or may indicate through actuation of control key 26 to select "Options" for viewing.

In the event that control key 26 of the Figure 8 panel is actuated, Figure 9 represents further presentation of options and is similar to the display associated with prior exemplary facets of the software application, such as represented in present Figure 4. In Figure 9, a user has actuated downward control key 34, so that view selection cursor 50 is moved from "Enter a New Score" (as represented in present Figure 4) to "View Previous Scores." Again, control key 28 may be utilized to actuate the "Back" function, while control key 26 actuation is to "Select" the pathway or function indicated by the position of view selection cursor 50.

Assuming that a user has selected to "View Previous Scores" as referenced in present Figure 9, Figure 10 provides an example of a display of such previous score information. As shown, three separate scores are represented, including their corresponding course rating and course slope as associated with each such round of play. Even without calculation of a player's handicap index, operation of the present invention facilitates a user's entry and selected retrieval (through secured access) of such golf scoring records of the user.

As represented further by Figure 10, a user may exit the golf handicap index (or generally golf scoring record) mode of handset 16 by actuating "Exit"

with control key 28. A user may return to the "Options" phase of the software application through actuation of control key 26. Still further, upward and downward control keys 32 and 34, respectively, may be selectively utilized for moving view selection cursor 50, such that additional scores may be read, beyond those listed in the exemplary display of present Figure 10. In other words, control keys 32 and 34 permit the view selection cursor 50 to be moved up and down along a list or "menu" of a user's previous golf scoring records, for viewing thereof via display 24.

Upon exit, such as from Figure 10, a user in accordance with certain options and in accordance with the subject invention may forward any portion or all of a user's golf scoring records to a relatively remote location therefrom, by selectively conducting mobile telephony operations with handset 16 in accordance with the subject invention.

As referenced above, those golf scoring means comprising a SIM card memory software application having a golf handicap calculation formula comprise golf handicap algorithm means for transforming data input thereto via such handset data input feature into a user's golf handicap index.

In all of the present embodiments, it is to be understood that one significant benefit obtained is that the associated GSM based mobile phone handset provides all of the needed input and output capability for any of the subject inventions. In other words, no additional equipment is required for practice of the subject invention with a smart card besides such

handset. Therefore, a golf handicap smart card system is provided which may permit customers to benefit from additional features beyond those presently available in a given marketplace.

It is to be fully understood that the subject invention equally relates to corresponding methodologies for providing and/or operating the various devices and different apparatus and system combinations discussed herein.

Those of ordinary skill in the art should appreciate that additional modifications and variations may be practiced, within the broader scope of the subject invention. For example, by using a Java-based SIM smart card platform, GSM mobile phone providers could make embodiments of the subject invention available as a pre-programmed application, with present subject matter programmed onto the SIM smart card prior to any service activation. In other embodiments, the requisite software application could be downloaded through various routes to the SIM smart card. All such modifications and variations come within the spirit and scope of the subject invention.

The present invention may encompass still further modifications and variations, relating for example to alternate forms of mobile phones and/or smart cards and/or integrated chips included in smart cards or directly into the mobile phone. In other words, the broader aspects of the subject invention are not limited to only use of GSM based phones and SIM smart cards.

Figure 11 represents a schematic block diagram of a portable golf data system in accordance with the

subject invention including a mobile phone handset generally 52. Certain other features of such handset 52 may be shared in common with previously discussed handset 16. These include, for example, the keypad 22, display 24, display control keys 26, 28, 30, 32, and 34, cellular device control circuits 46 and antenna 48. Equivalents thereto may be practiced.

A difference between the respective embodiments of handset 52 of Figure 11 and handset 16 of Figure 2 is replacement of the access module 40 and smart card reader 36 (as well as the smart card 20) with an integrated chip generally 54. As well known to those of ordinary skill in the art, such integrated chip may include microprocessor based functions, represented by portion 56 generally, and a section of memory generally 58. The outer casing generally 60 of handset 52 may be selectively opened such that integrated chip 54 may be periodically removed and replaced with another chip of similar programming but relating to a different user or player, or replaced with an entirely different chip for the same or a different user/player.

The embodiment of present Figure 11 represents an exemplary portable golf data system, comprising a mobile phone handset generally 52 in accordance with the subject invention. As indicated, data input and output features are provided, and an integrated chip generally 54 is provided with a programmed microprocessor function (see 56) for operation of the mobile phone handset. As understood from the complete disclosure herewith, such integrated chip 54 may

further include the area of memory 58 for operational receipt of certain software applications.

In accordance with the subject invention, golf data means may reside as one such software application received in memory area 58, for maintaining golf data records. In still additional exemplary embodiments, such golf data means may alternatively include prestored golf related data selectively accessible with the handset data output feature. For example, prestored golf related data may include a variety of data, such as information regarding a particular golf course (such as its various ratings), or information about a particular hole on a given golf course, such as the rated par of such hole or the rated length from tee to green.

In still further exemplary embodiments, the aforementioned golf data means may alternately include golf scoring means comprising a software application received in memory 58 for handling any data input thereto via the handset data input feature and for maintaining a user's golf scoring records. In such example, such golf scoring means may further include alternatively golf handicap algorithm means, comprising a software application stored in memory 58 and having a golf handicap calculation formula for transforming data input thereto via the handset data input feature into a user's golf handicap index.

In yet a further context of the subject invention, Figure 2 may be regarded as representing a mobile phone based golf data system in accordance with the subject invention, including a smart card based mobile phone handset generally 16 and a smart card generally

20 for being received in a handset smart card port. Again, various golf data means may reside on an integrated circuit or chip 42 of such card 20, for maintaining golf data records, or alternatively for including prestored golf related data or for providing golf scoring means and golf handicap algorithm means, generally as referenced above. As represented by present Figure 2, and as discussed above, such handset 16 includes data input and output features, and has a smart card port for controlled access to operation thereof. The smart card 20 is preferably received within such handset smart card port for selective access to operation of the mobile phone handset, and includes memory on chip 42 thereof for operational receipt of software applications, such as the above-referenced golf data means.

In yet another aspect of the subject invention, it is to be understood that a mobile phone handset as shown in present Figure 2 may comprise a GSM based mobile phone handset operative with a SIM smart card. In still further embodiments, other protocols for access to a cellular network may be utilized. For example, various forms of multiplex access may be used. One such exemplary form of access is CDMA (Code Division Multiplex Access), a form of spread spectrum approach. Yet another alternative multiplex access approach is TDMA (Time Division Multiplex Access), involving sequential access to a single radio frequency.

In yet another aspect of the present invention, a smart card utilized such as with the embodiment of present Figure 2 may comprise a credit card type

device or, optionally, a plug-in module type device, as referenced above.

In yet a further aspect of the present invention, it is to be understood that Figure 11 represents certain broader aspects of the subject invention wherein the handset 52 itself carries or receives appropriate memory and circuitry for practice of the present invention, without necessarily requiring any separate smart card or plug-in modular device. In other words, the present invention could be incorporated into circuitry more integrated directly into a mobile phone handset.

In yet another aspect of the present invention, memory incorporated into such an exemplary handset may include software applications operative for transferring to such memory golf related data (such as course ratings/par ratings, length of holes) from a remote location via mobile telephony operations with such handset. All such variations are intended to come within the spirit and scope of the broader aspects of the subject invention.

It should be further understood by those of ordinary skill in the art that the foregoing presently preferred embodiments are exemplary only, and that the attendant description thereof is likewise by way of words of example rather than words of limitation, and their use does not preclude inclusion of such modifications, variations, and/or additions to the present invention as referenced above, and others, as would be readily apparent to one of ordinary skill in the art, the scope of the present invention being set forth in the appended claims.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS.

1. A smart card based golf scoring system, comprising:

a GSM based mobile phone handset, with data input and output features, and having a SIM card port;

a SIM card for being received in said handset SIM card port for operation of said GSM based mobile phone handset, said SIM card including memory for operational receipt of software applications; and

golf scoring means, comprising a software applicatcn received in said SIM card memory, for handling data input thereto via said handset data input feature for maintaining a user's golf scoring records.

2. A smart card based golf scoring system as in claim 1, wherein said golf scoring means includes golf handicap algorithm means, comprising a SIM card memory software application having a golf handicap calculation formula for transforming data input thereto via said handset data input feature into a user's golf handicap index.

3. A smart card based golf scoring system as in claim 1, wherein said golf scoring means is operative for maintaining and selectively outputting through said handset data output feature data input comprising a user's score for a round of play.

4. A smart card based golf scoring system as in claim 3, wherein said golf scoring means is operative for maintaining a series of data input thereto, including a user's adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play.

5. A smart card based golf scoring system as in claim 4, wherein said golf scoring means is operative for maintaining multiple series of said data input thereto, corresponding with multiple rounds of play.

6. A smart card based golf scoring system as in claim 2, wherein said golf scoring means is operative for selectively outputting through said handset data output feature a user's golf handicap index and a user's golf scoring records as maintained thereby.

7. A smart card based golf scoring system as in claim 2, wherein said golf handicap calculation formula operates on data input thereto for determining a user's golf handicap index by taking 96 percent of the average of a variable predetermined number of a user's determined lowest handicap differentials, which predetermined number varies based on the total number of available scoring records for the user.

8. A smart card based golf scoring system as in claim 7, wherein said golf handicap calculation formula operates on data input thereto concerning the user's adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play for calculating the handicap differential for such round of play by subtracting the course rating data from the adjusted gross score data, multiplying such difference by 113, then dividing the resulting number by the slope rating, and recording the final number to the nearest tenth.

9. A smart card based golf scoring system as in claim 1, wherein said data input and output features

include an alphanumerical display, control keys for interacting with such display and a keypad.

10. A smart card based golf scoring system as in claim 1, wherein said SIM card memory further includes a PIN designation operative with said handset for gaining control access thereto, whereby mobile telephony operations and a user's golf scoring records are maintained under secured access.

11. A smart card based golf scoring system as in claim 1, wherein said card memory further includes software applications operative for transferring a user's golf scoring records to a remote location via mobile telephony operations with said handset.

12. A GSM based mobile phone with a SIM card golf handicap calculation feature, comprising:

a GSM mobile phone with a smart card reader and GSM access module for operational removable receipt of a SIM card programmed for association therewith, said mobile phone further including cellular device control circuits and a cellular/smart card interface for control of said cellular device control circuits through the SIM card removably associated therewith, a keypad for inputting data to said mobile phone, and a display for outputting data from said mobile phone; and

a SIM smart card, for operational removable association with said GSM mobile phone, for accessing and selectively operating said cellular device control circuits for conducting mobile telephony operations, said SIM smart card including a microprocessor and associated memory incorporating a predetermined golf handicap calculation formula within a golf handicap

software application, for selectively operating said mobile phone in a golf handicap index mode, such that said keypad is used for inputting predetermined golf scoring related data to said mobile phone, said predetermined formula is used to calculate a handicap index, and said display is used for selectively displaying a calculated handicap index.

13. A GSM based mobile phone with a SIM card golf handicap calculation feature as in claim 12, wherein said mobile phone further includes control keys operative with said display for facilitating data entry during operation in said golf handicap index mode, for inputting predetermined golf scoring related data including a user's adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play, and for selectively displaying said calculated handicap index and golf scoring related data.

14. A GSM based mobile phone with a SIM card golf handicap calculation feature as in claim 13, wherein said SIM smart card memory includes a PIN designation for permitting secured access to operation of said mobile phone and to a user's golf scoring related data and calculated handicap index.

15. A GSM based mobile phone with a SIM card golf handicap calculation feature as in claim 12, wherein said golf handicap software application includes selectively operating said cellular device control circuits for selectively transmitting a user's golf scoring related data and calculated handicap index to a remote location via mobile telephony operations.

16. A GSM based mobile phone with a SIM card golf handicap calculation feature as in claim 13, wherein said predetermined formula includes an initial subroutine for calculating and maintaining a handicap differential based on data for a user's round of play and thereafter calculating a user's handicap index based on plural calculated handicap differentials for such user.

17. A SIM smart card with golf handicap index calculation feature, for use with a GSM based mobile phone handset of the type having data input and output features, and having a SIM card port, said SIM smart card comprising:

a pocket size card with a microprocessor chip and memory for operational receipt of software applications, including mobile phone operational software for selected mobile phone operation of the GSM based mobile phone handset with said pocket size card being received in the SIM card port thereof; and

said memory further including therein golf handicap application software incorporating a predetermined golf handicap calculation formula, for selective operation of the handset in a golf handicap index mode, for transforming data input via the handset data input feature into a user's golf handicap index, such that a user operating the mobile phone handset with said smart card may selectively conduct mobile phone operations and golf handicap index calculations.

18. A SIM smart card with golf handicap index calculation feature as in claim 17, wherein said golf handicap application software is operative for maintaining and selectively outputting through the

handset data output feature data input comprising a user's score for a round of play.

19. A SIM smart card with golf handicap index calculation feature as in claim 18, wherein said golf handicap application software is operative for maintaining a series of data input thereto, including a user's adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play.

20. A SIM smart card with golf handicap index calculation feature as in claim 19, wherein said golf handicap application software is operative for maintaining multiple series of said data input thereto, corresponding with multiple rounds of play.

21. A SIM smart card with golf handicap index calculation feature as in claim 18, wherein said golf handicap application software is operative for selectively outputting through the handset data output feature a user's golf handicap index and a user's golf scoring records as maintained thereby.

22. A SIM smart card with golf handicap index calculation feature as in claim 18, wherein said golf handicap calculation formula operates on data input thereto for determining a user's golf handicap index by taking 96 percent of the average of a variable predetermined number of a user's determined lowest handicap differentials, which predetermined number varies based on the total number of available scoring records for the user.

23. A SIM smart card with golf handicap index calculation feature as in claim 22, wherein said golf handicap calculation formula operates on data input

thereto concerning the user's adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play for calculating the handicap differential for such round of play by subtracting the course rating data from the adjusted gross score data, multiplying such difference by 113, then dividing the resulting number by the slope rating, and recording the final number to the nearest tenth.

24. A SIM smart card with golf handicap index calculation feature as in claim 17, wherein said card memory further includes a PIN designation operative with a GSM based mobile phone handset for gaining control access thereto, whereby mobile telephony operations and a user's golf scoring records are maintained under secured access.

25. A SIM smart card with golf handicap index calculation feature as in claim 17, wherein said card memory further includes software applications operative for transferring a user's golf scoring records to a remote location via mobile telephony operations with a GSM based mobile phone handset.

26. A methodology for operating a smart card based golf handicap system, including the steps of:

providing a GSM based mobile phone handset of the type having data input and output features, and having a SIM card port;

providing for being selectively received in said handset SIM card port a SIM smart card of the type having a microprocessor chip and memory for operational receipt of software applications;

incorporating mobile phone operational software into said SIM smart card memory and selectively operating same with said SIM smart card associated with said handset for conducting mobile phone operations;

further incorporating golf handicap application software into said SIM smart card memory, including a predetermined golf handicap calculation formula, for selective operation of the handset in a golf handicap index mode, for transforming data input via said handset data input feature into a user's golf handicap index, such that a user may selectively operate said handset with said smart card for either conducting mobile phone operations or golf handicap index calculations.

27. A methodology for operating a smart card based golf handicap system as in claim 26, wherein said golf handicap application software is operative for maintaining and selectively outputting through said handset data output feature data input comprising a user's score for a round of play.

28. A methodology for operating a smart card based golf handicap system as in claim 27, wherein said golf handicap application software is operative for maintaining a series of data input thereto, including a user's adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play.

29. A methodology for operating a smart card based golf handicap system as in claim 28, wherein said golf handicap application software is operative for

maintaining multiple series of said data input thereto, corresponding with multiple rounds of play.

30. A methodology for operating a smart card based golf handicap system as in claim 27, wherein said golf handicap application software is operative for selectively outputting through said handset data output feature a user's golf handicap index and a user's golf scoring records as maintained thereby.

31. A methodology for operating a smart card based golf handicap system as in claim 27, wherein said golf handicap calculation formula operates on data input thereto for determining a user's golf handicap index by taking 96 percent of the average of a variable predetermined number of a user's determined lowest handicap differentials, which predetermined number varies based on the total number of available scoring records for the user.

32. A methodology for operating a smart card based golf handicap system as in claim 31, wherein said golf handicap calculation formula operates on data input thereto concerning the user's adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play for calculating the handicap differential for such round of play by subtracting the course rating data from the adjusted gross score data, multiplying such difference by 113, then dividing the resulting number by the slope rating, and recording the final number to the nearest tenth.

33. A methodology for operating a smart card based golf handicap system as in claim 26, wherein said data input and output features include an alphanumerical

display, control keys for interacting with such display and a keypad.

34. A methodology for operating a smart card based golf handicap system as in claim 26, wherein said SIM smart card memory further includes a PIN designation operative with said handset for gaining control access thereto, whereby mobile telephony operations and a user's golf scoring records are maintained under secured access.

35. A methodology for operating a smart card based golf handicap system as in claim 26, wherein said SIM smart card memory further includes software applications operative for transferring a user's golf scoring records to a remote location via mobile telephony operations with said handset.

36. A mobile phone based golf data system, comprising:

a smart card based mobile phone handset, with data input and output features, and having a smart card port for controlled access to operation thereof;

a smart card for being received in said handset smart card port for selective access to operation of said mobile phone handset, said smart card including memory for operational receipt of software applications; and

golf data means, comprising a software application received in said smart card memory, for maintaining golf data records.

37. A mobile phone based golf data system as in claim 36, wherein said golf data means includes prestored golf related data selectively accessible with said handset data output feature.

38. A mobile phone based golf data system as in claim 36, wherein said golf data means includes golf scoring means comprising a software application received in said smart card memory for handling any data input thereto via said handset data input feature and for maintaining a user's golf scoring records.

39. A mobile phone based golf data system as in claim 38, wherein said golf scoring means includes golf handicap algorithm means, comprising a smart card memory software application having a golf handicap calculation formula for transforming data input thereto via said handset data input feature into a user's golf handicap index.

40. A mobile phone based golf data system as in claim 38, wherein said golf scoring means is operative for maintaining and selectively outputting through said handset data output feature data input comprising a user's score for a round of play.

41. A mobile phone based golf data system as in claim 40, wherein said golf scoring means is operative for maintaining a series of data input thereto, including a user's adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play.

42. A mobile phone based golf data system as in claim 41, wherein said golf scoring means is operative for maintaining multiple series of said data input thereto, corresponding with multiple rounds of play.

43. A mobile phone based golf data system as in claim 39, wherein said golf scoring means is operative for selectively outputting through said handset data

output feature a user's golf handicap index and a user's golf scoring records as maintained thereby.

44. A mobile phone based golf data system as in claim 39, wherein said golf handicap calculation formula operates on data input thereto for determining a user's golf handicap index by taking 96 percent of the average of a variable predetermined number of a user's determined lowest handicap differentials, which predetermined number varies based on the total number of available scoring records for the user.

45. A mobile phone based golf data system as in claim 44, wherein said golf handicap calculation formula operates on data input thereto concerning the user's adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play for calculating the handicap differential for such round of play by subtracting the course rating data from the adjusted gross score data, multiplying such difference by 113, then dividing the resulting number by the slope rating, and recording the final number to the nearest tenth.

46. A mobile phone based golf data system as in claim 36, wherein said data input and output features include an alphanumerical display, control keys for interacting with such display and a keypad.

47. A mobile phone based golf data system as in claim 38, wherein said smart card memory further includes a PIN designation operative with said handset for gaining control access thereto, whereby mobile telephony operations and a user's golf scoring records are maintained under secured access.

48. A mobile phone based golf data system as in claim 38, wherein said smart card memory further includes software applications operative for transferring a user's golf scoring records to a remote location via mobile telephony operations with said handset.

49. A mobile phone based golf data system as in claim 36, wherein said mobile phone handset is GSM based and said smart card is a SIM card.

50. A mobile phone based golf data system as in claim 36, wherein mobile telephony functions of said mobile phone handset are based on a form of division multiplex access.

51. A mobile phone based golf data system as in claim 50, wherein said multiplex access form is CDMA.

52. A mobile phone based golf data system as in claim 50, wherein said multiplex access form is TDMA.

53. A mobile phone based golf data system as in claim 36, wherein said smart card comprises a credit card type card.

54. A mobile phone based golf data system as in claim 36, wherein said smart card comprises a plug-in module type device.

55. A portable golf data system, comprising:

a mobile phone handset, with data input and output features, and having an integrated chip with programmed microprocessor function, for operation of said mobile phone handset, said integrated chip further including memory for operational receipt of software applications; and

golf data means, comprising a software application received in said memory, for maintaining golf data records.

56. A portable golf data system as in claim 55, wherein said golf data means includes prestored golf related data selectively accessible with said handset data output feature.

57. A portable golf data system as in claim 55, wherein said golf data means includes golf scoring means comprising a software application received in said memory for handling any data input thereto via said handset data input feature and for maintaining a user's golf scoring records.

58. A portable golf data system as in claim 57, wherein said golf scoring means includes golf handicap algorithm means, comprising a software application stored in said memory and having a golf handicap calculation formula for transforming data input thereto via said handset data input feature into a user's golf handicap index.

59. A portable golf data system as in claim 57, wherein said golf scoring means is operative for maintaining and selectively outputting through said handset data output feature data input comprising a user's score for a round of play.

60. A portable golf data system as in claim 59, wherein said golf scoring means is operative for maintaining a series of data input thereto, including a user's adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play.

61. A portable golf data system as in claim 60, wherein said golf scoring means is operative for maintaining multiple series of said data input thereto, corresponding with multiple rounds of play.

62. A portable golf data system as in claim 58, wherein said golf scoring means is operative for selectively outputting through said handset data output feature a user's golf handicap index and a user's golf scoring records as maintained thereby.

63. A portable golf data system as in claim 58, wherein said golf handicap calculation formula operates on data input thereto for determining a user's golf handicap index by taking 96 percent of the average of a variable predetermined number of a user's determined lowest handicap differentials, which predetermined number varies based on the total number of available scoring records for the user.

64. A portable golf data system as in claim 63, wherein said golf handicap calculation formula operates on data input thereto concerning the user's adjusted gross score for a round of play and corresponding course rating and slope rating associated with such round of play for calculating the handicap differential for such round of play by subtracting the course rating data from the adjusted gross score data, multiplying such difference by 113, then dividing the resulting number by the slope rating, and recording the final number to the nearest tenth.

65. A portable golf data system as in claim 55, wherein said data input and output features include an

alphanumerical display, control keys for interacting with such display and a keypad.

66. A portable golf data system as in claim 57, wherein said memory further includes software operative with said handset for gaining control access thereto, whereby mobile telephony operations and a user's golf scoring records are maintained under secured access.

67. A portable golf data system as in claim 57, wherein said memory further includes software applications operative for transferring a user's golf scoring records to a remote location via mobile telephony operations with said handset.

68. A portable golf data system as in claim 56, wherein said memory includes software applications operative for transferring to said memory golf related data from a remote location via mobile telephony operations with said handset.

69. A portable golf data system as in claim 55, wherein said mobile phone handset is GSM based and said integrated chip comprises a form of a removable smart card.

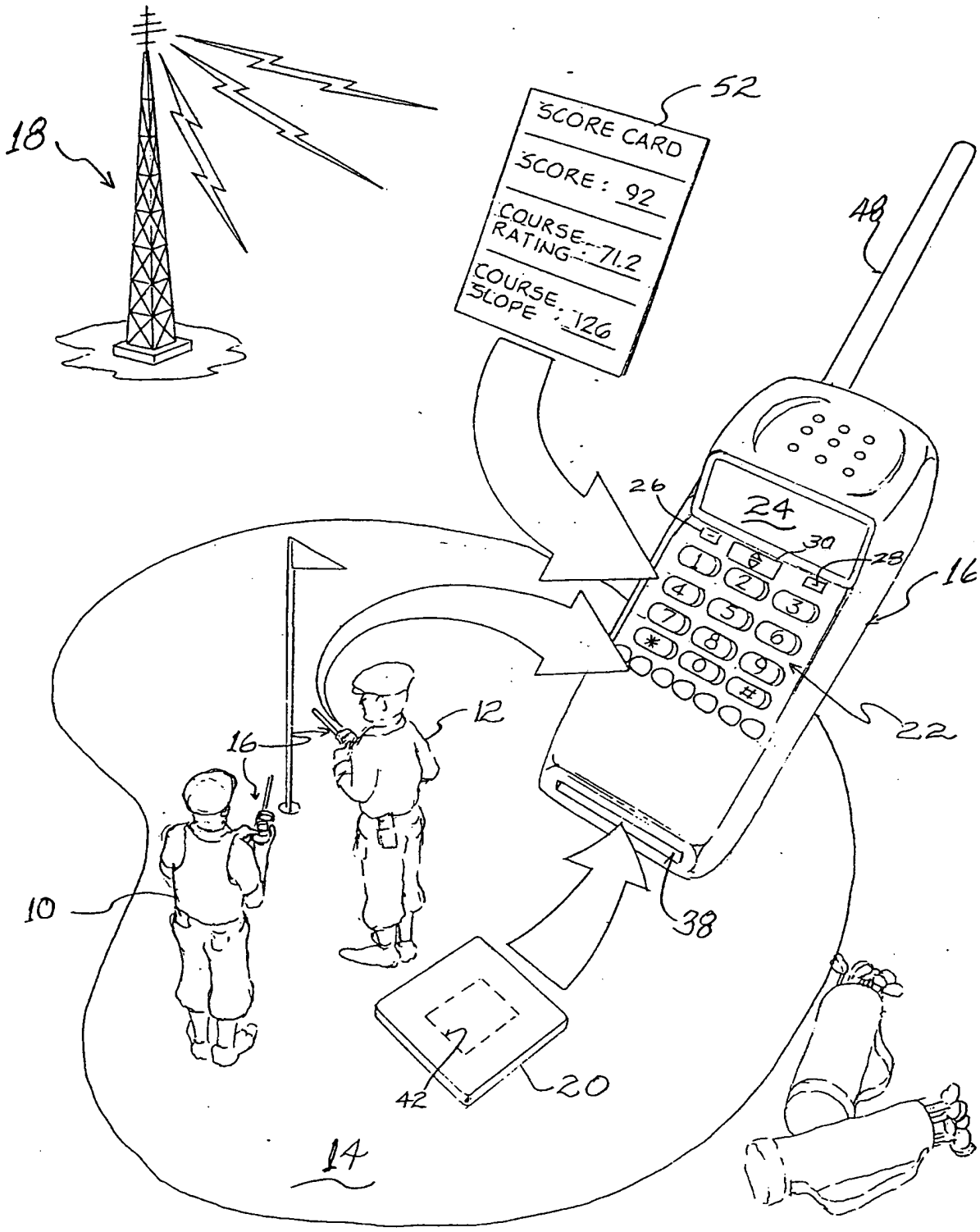

18
52
SCORE CARD
SCORE : 92
COURSE RATING : 71.2
COURSE SLOPE : 126
48
26
24
30
28
16
22
12
16
10
38
42
20
14

Fig. 1

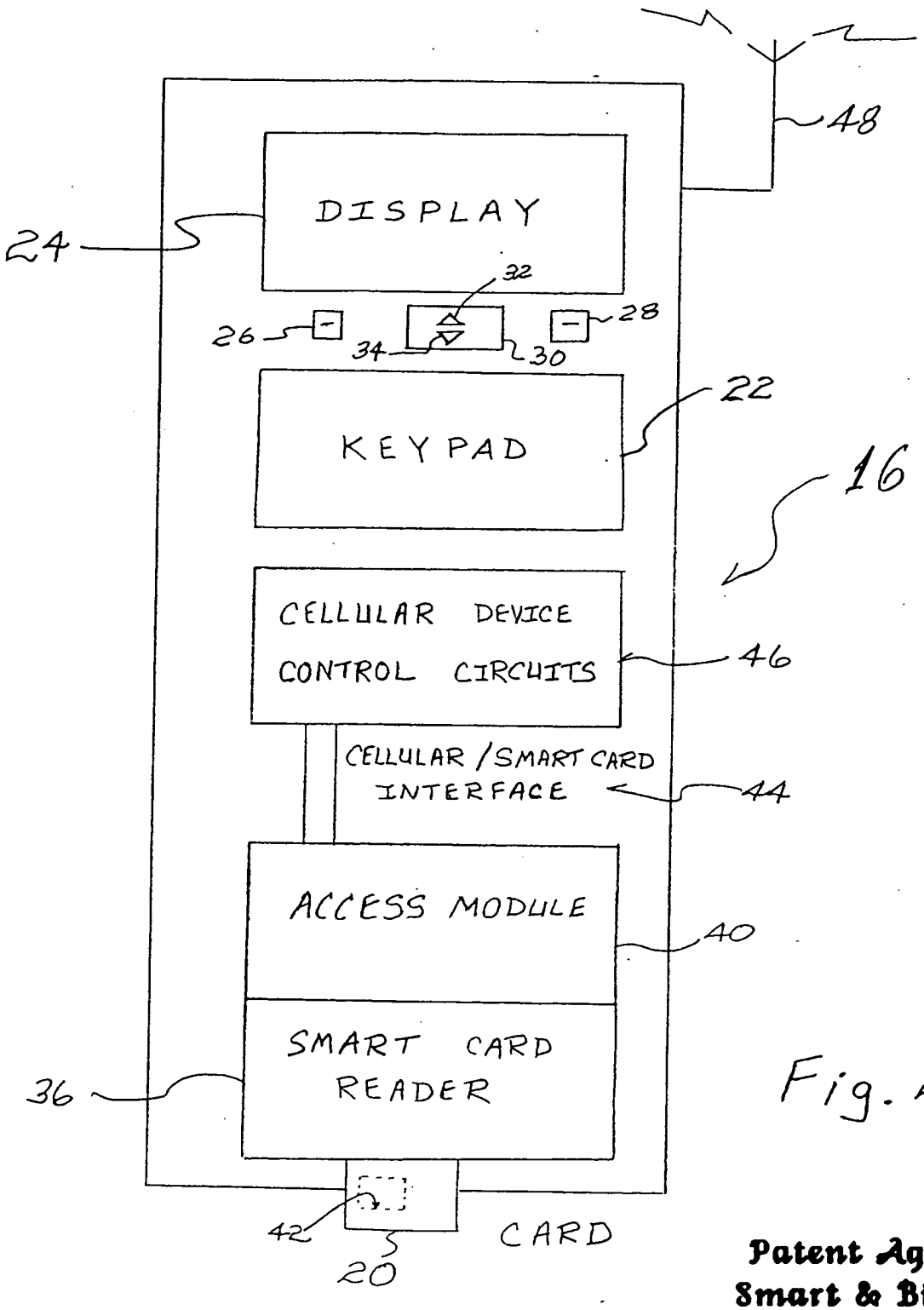


Fig. 2

Patent Agents
Smart & Biggar

Fig. 3

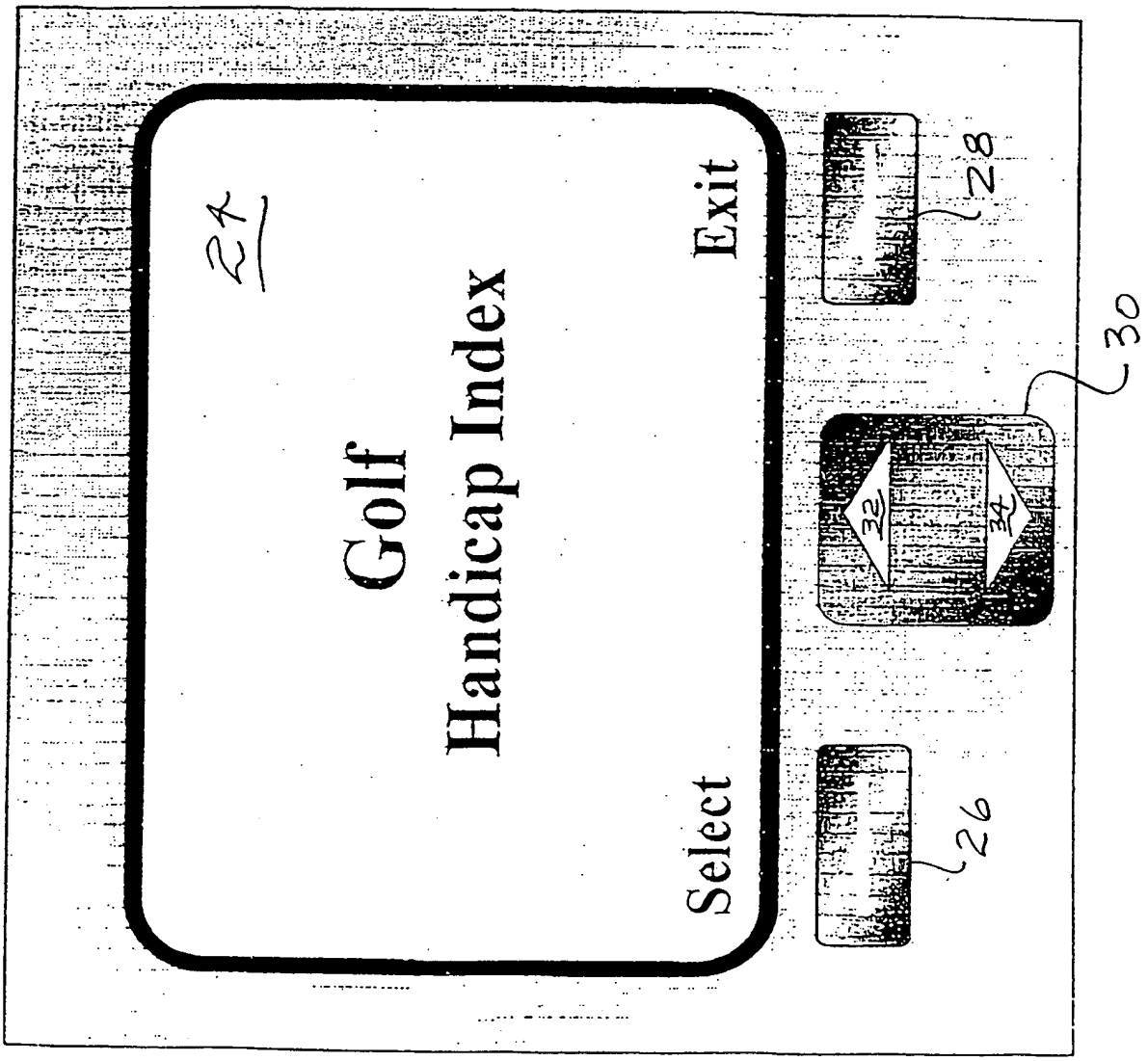


Fig. 4

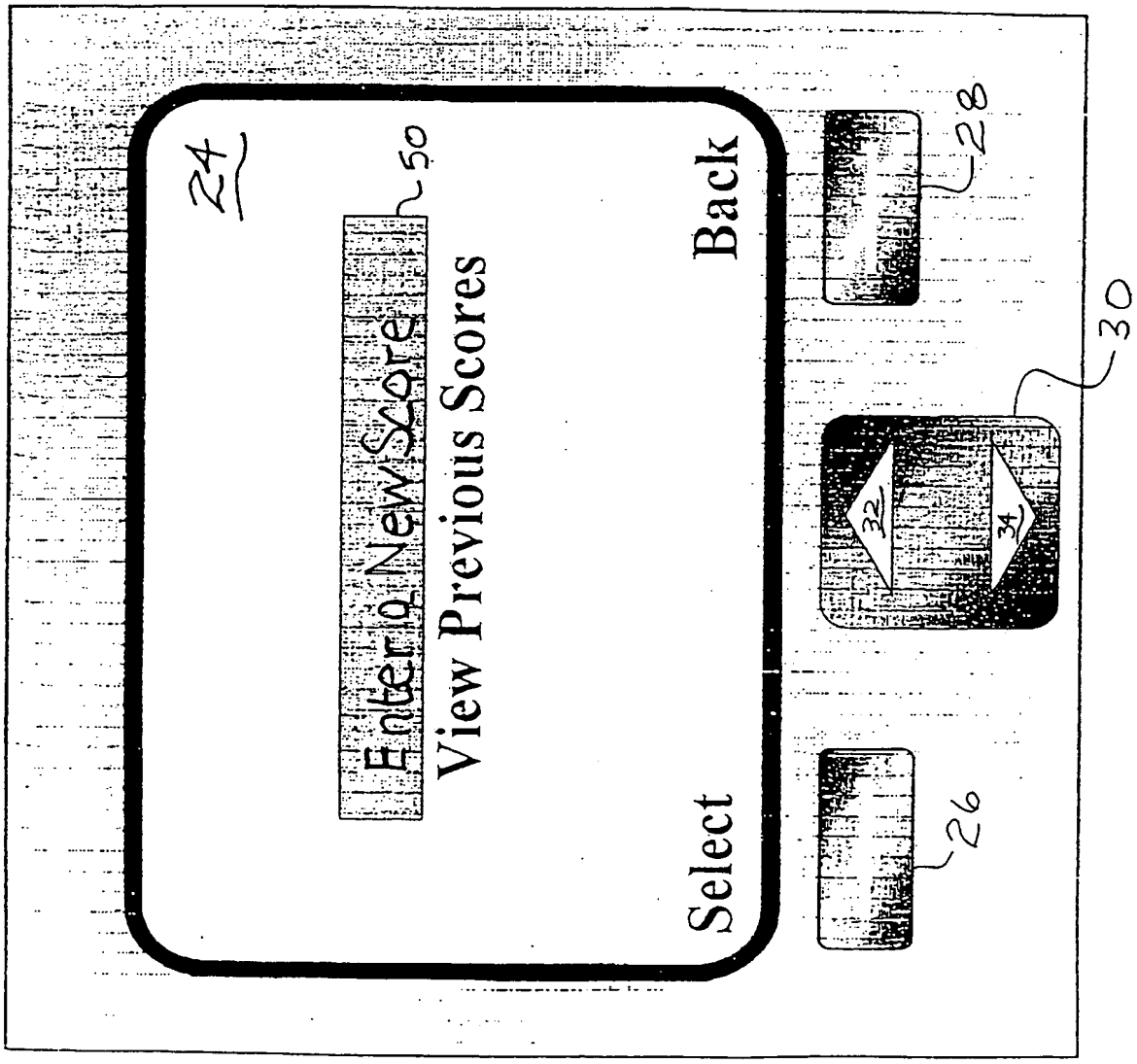

24
Enter a New Score
50
View Previous Scores
Back
Select
28
30
32
34
26

Fig. 5

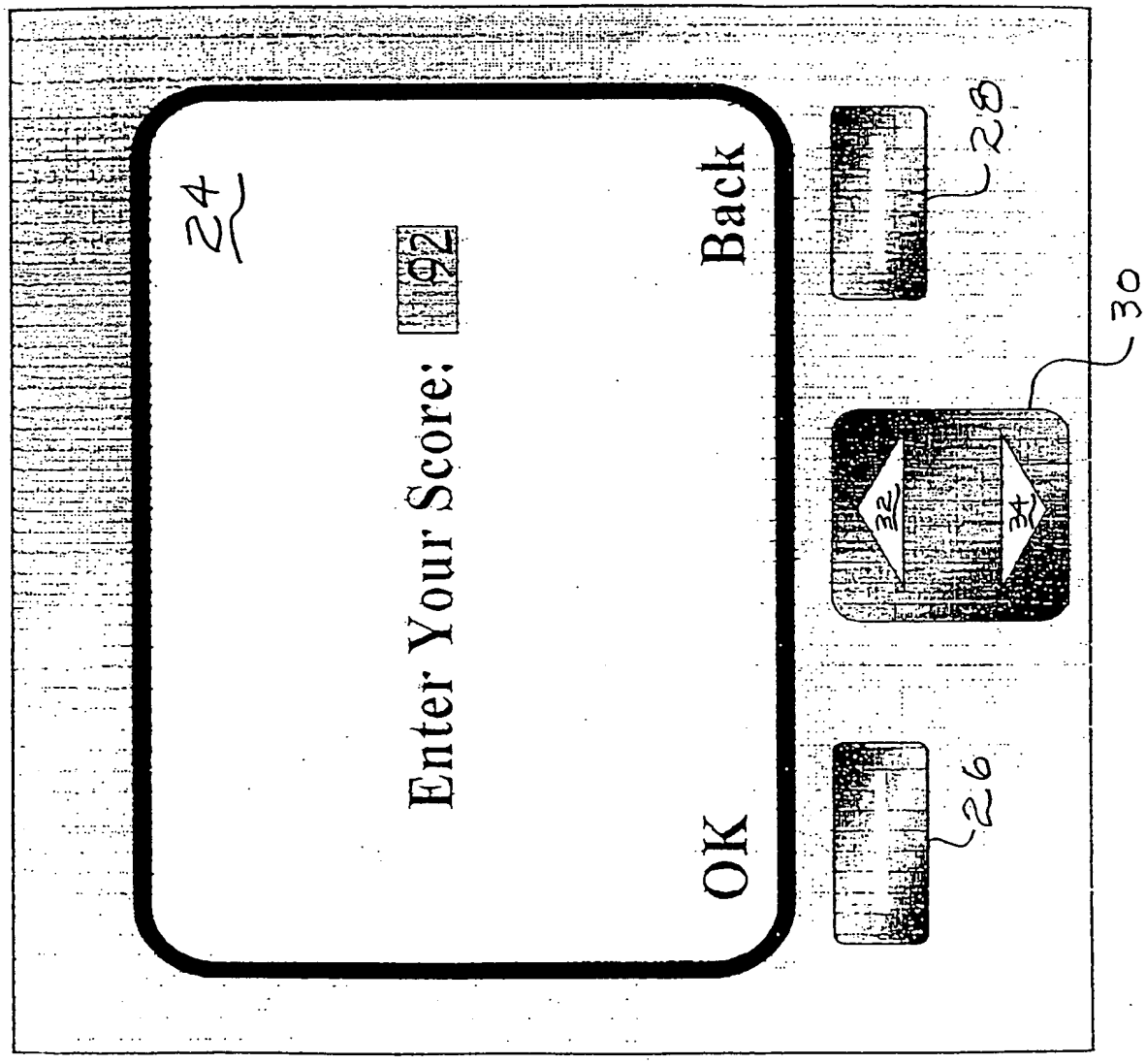


Fig. 6

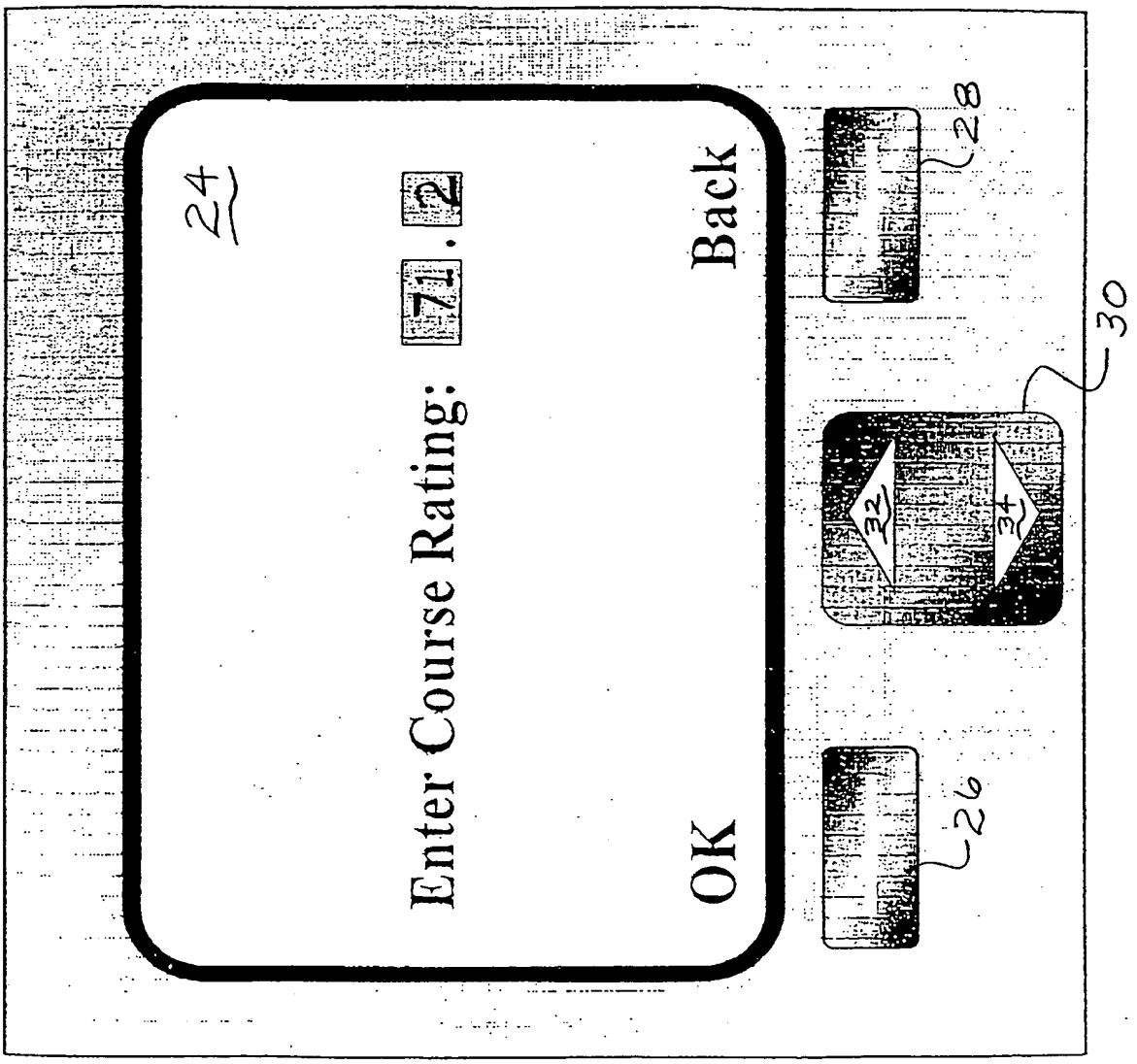


Fig. 7

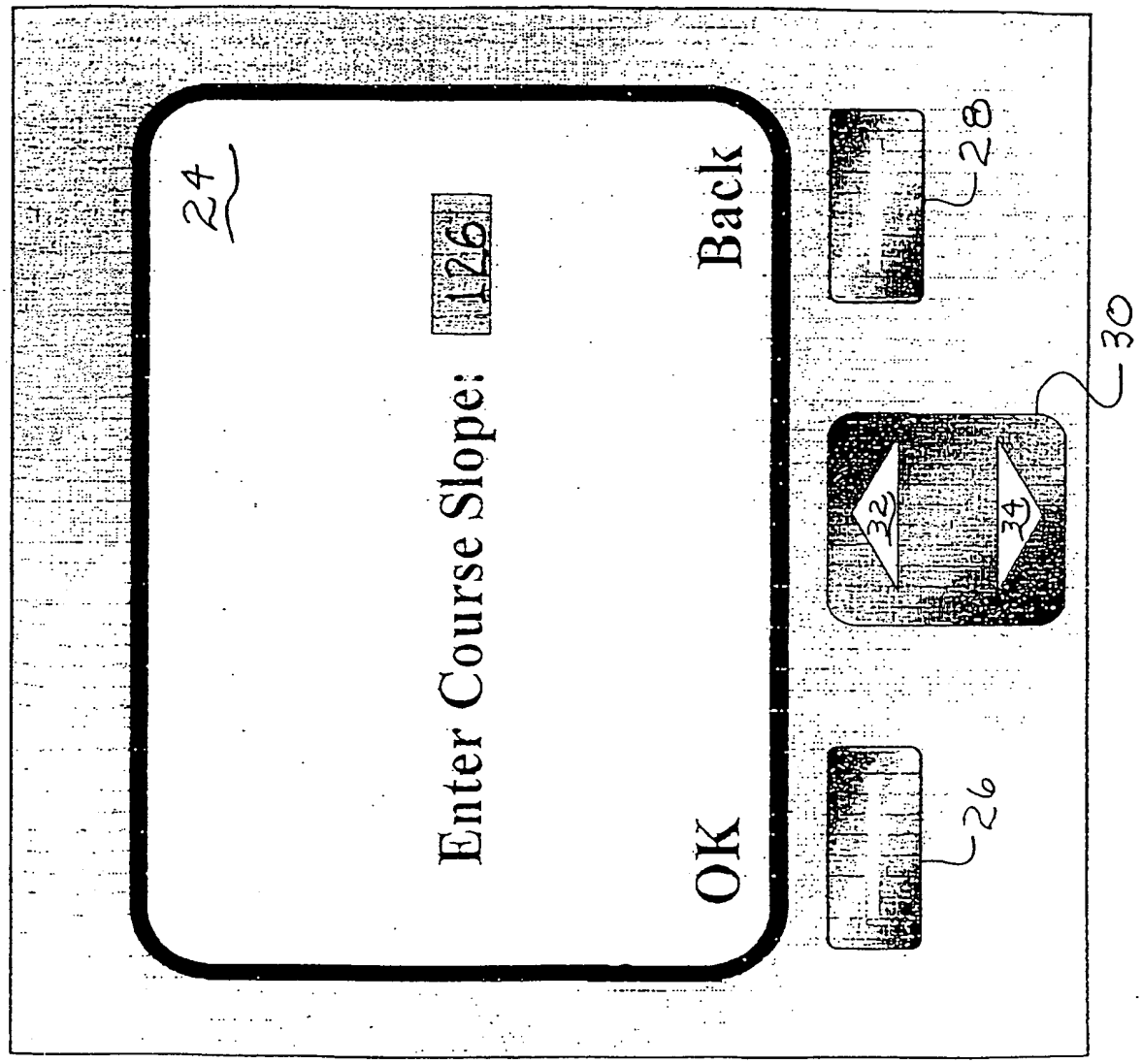
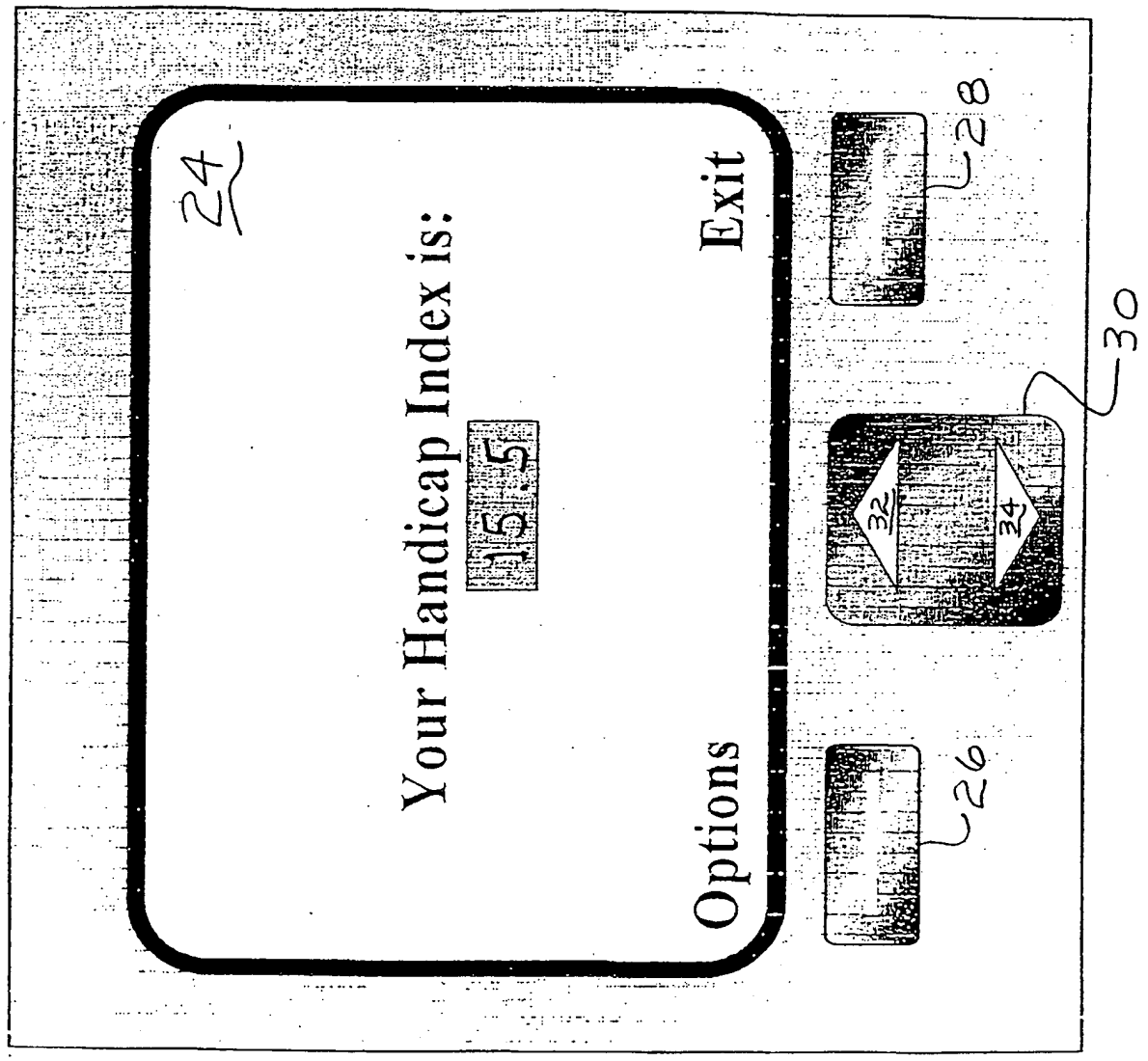


Fig. 8



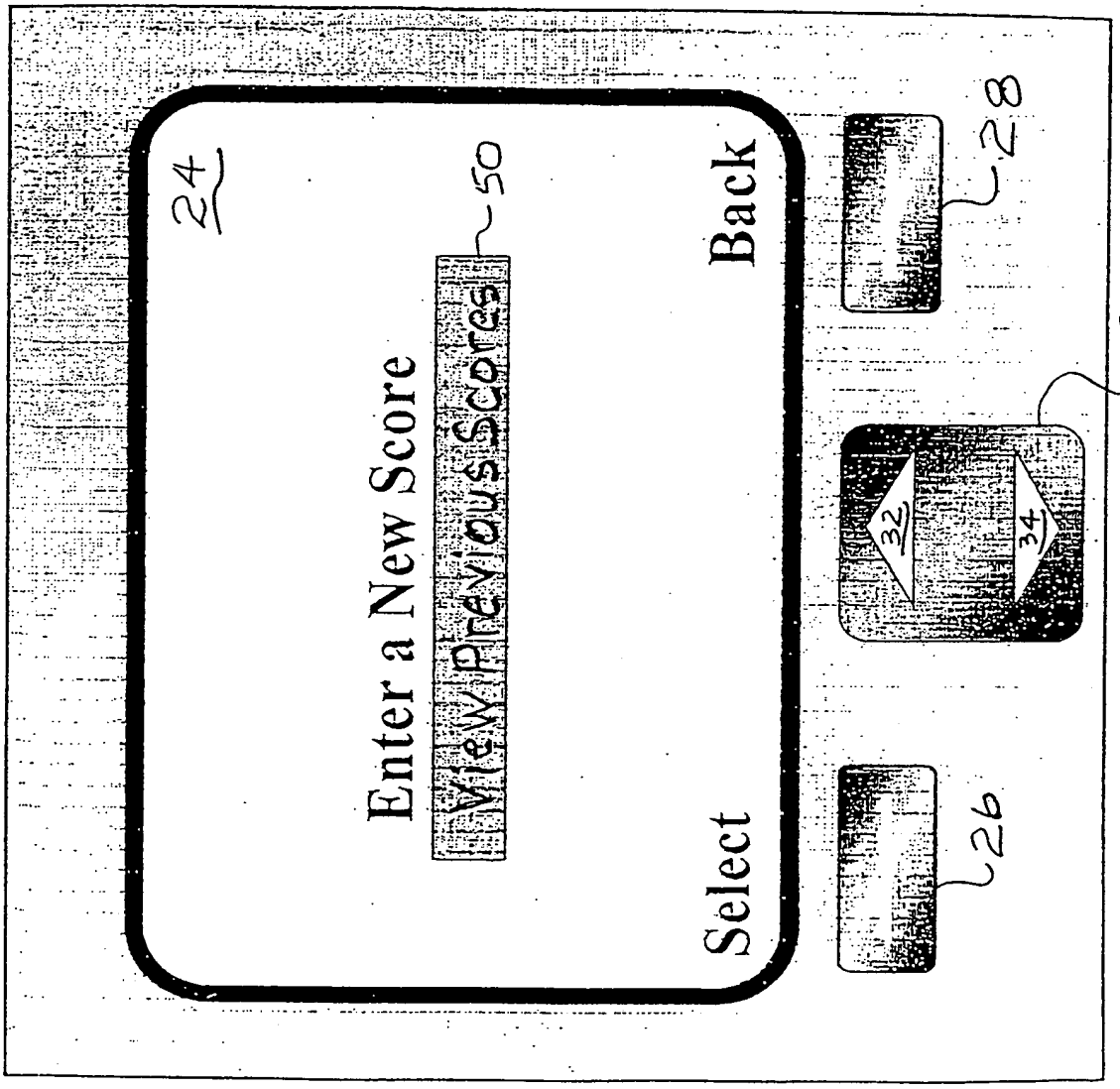
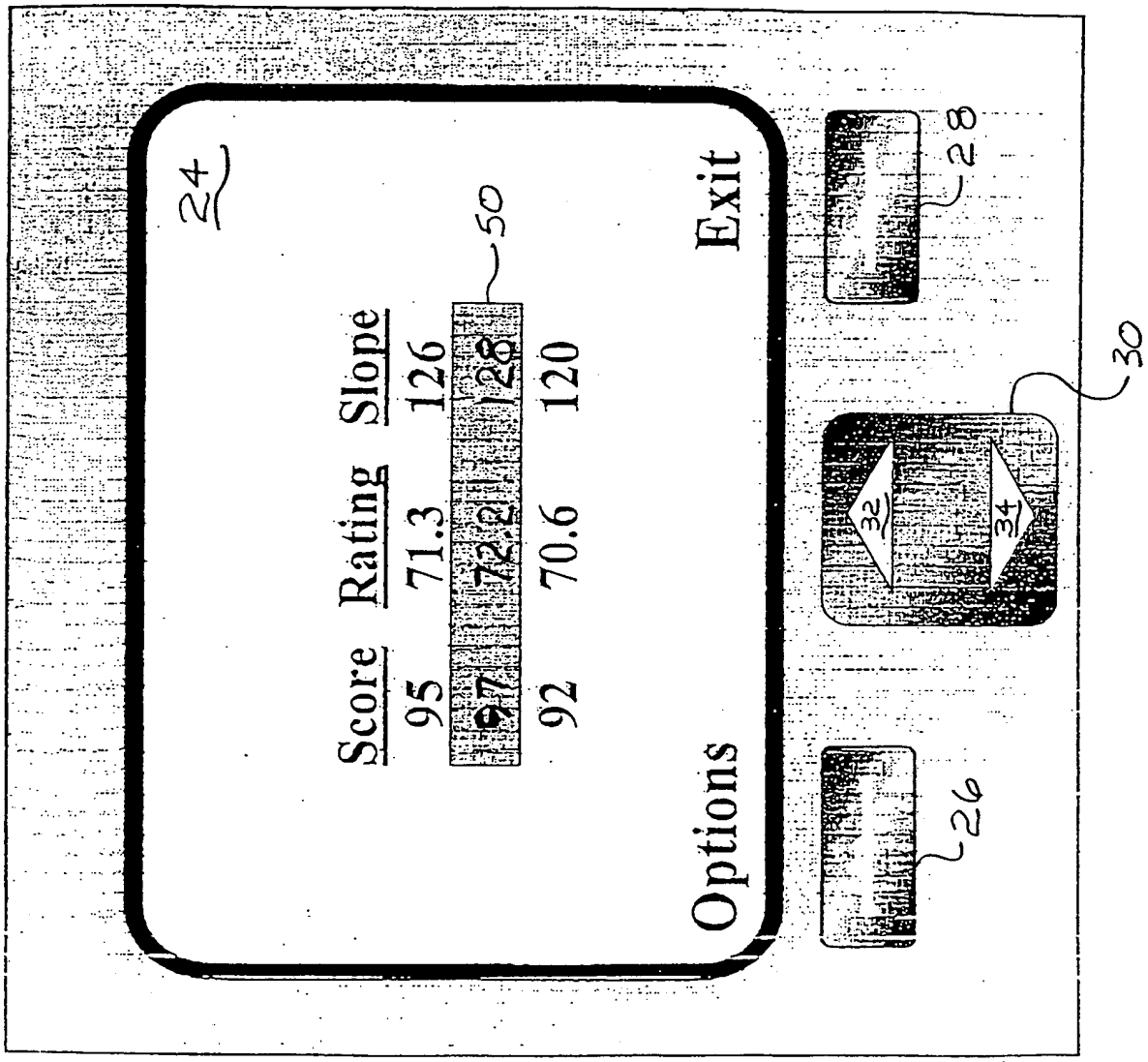

24
Enter a New Score
View Previous Scores
50
Back
Select
26
28
30
32
34

Fig. 9

Fig. 10


24
Score Rating Slope
95 71.3 126
97 72.2 128
92 70.6 120
50
Options
Exit
26
28
30
32
34

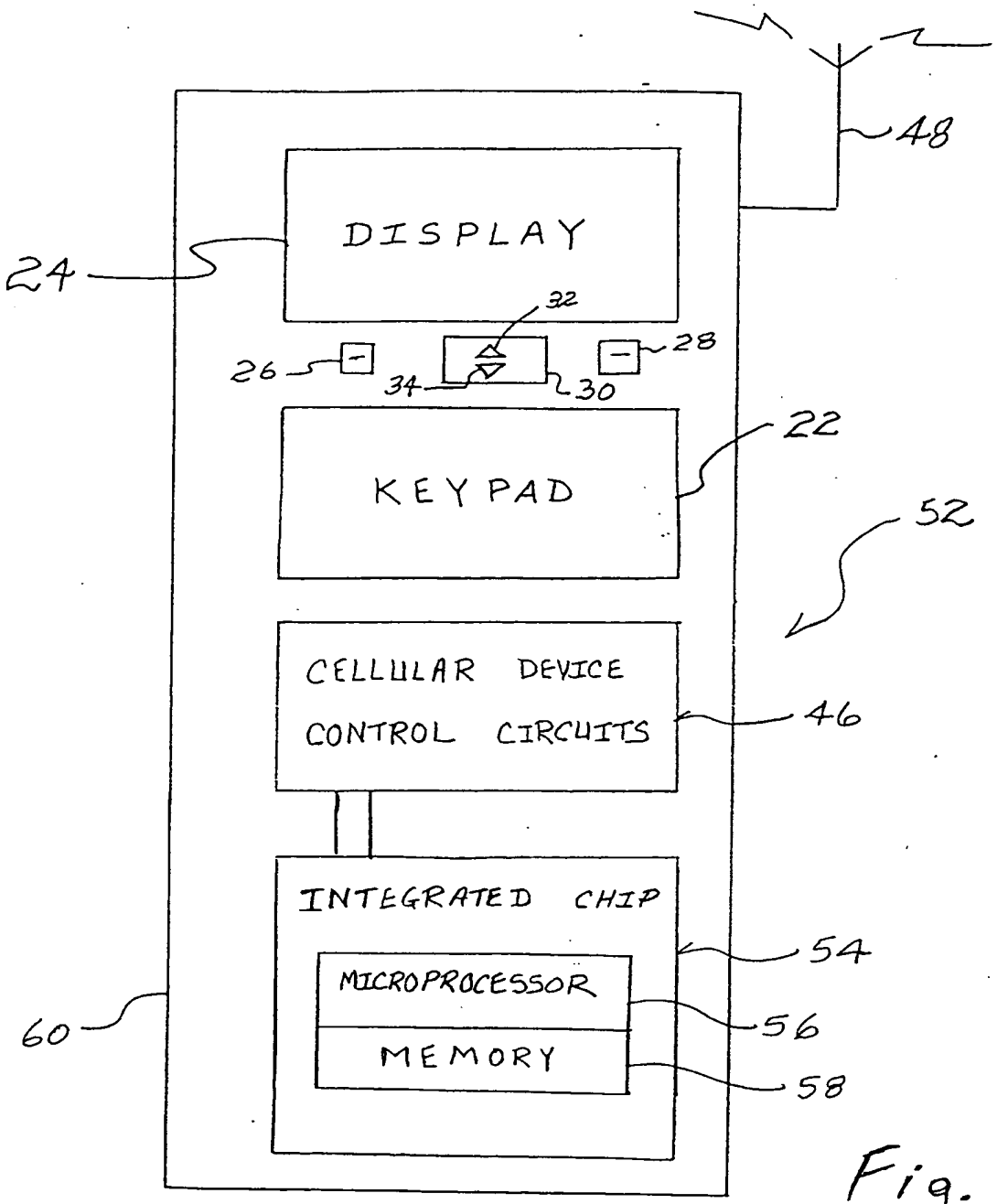


Fig. 11

Patent Agents
Smart & Biggar

This Page is Inserted by IFW Indexing and Scanning Operations and is not part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☒ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☒ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.
As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.